EX PARTE OR LATE FILED

HOGAN & HARTSON
L.L.P.

ORIGINAL

August 1, 2001

ARI Q. FITZGERALD
PARTNER
(202) 637-5423
AQFITZGERALD@HHLAW.COM

COLUMBIA SQUARE
555 THIRTEENTH STREET, NW
WASHINGTON, DC 20004-1109
TEL (202) 637-5600
FAX (202) 637-5910
WWW.HHLAW.COM

By Hand

Magalie Roman Salas
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems
ET Docket No. 98-153
***Ex Parte* Communication**

Dear Ms. Salas:

I am writing on behalf of Mercedes-Benz USA, LLC, ("MBUSA") and its parent company, DaimlerChrysler AG, to notify you of a series of *ex parte* meetings that occurred on Tuesday, July 31, 2001, concerning issues related to the above-referenced proceeding. A copy of the handout distributed at the meetings is attached hereto.

The meetings were held to address the use of 24 GHz ultra-wideband ("UWB") radar systems to enhance automotive safety. New advances will permit automobile manufacturers to provide radar systems that will greatly reduce the incidence and severity of accidents, saving lives on America's highways. This technology will use spectrum that is far removed from spectrum below 3 GHz. Accordingly, the 24 GHz UWB systems will not pose an interference threat to GPS or other users of that spectrum. Indeed, in the voluminous record of this proceeding, no commenters have pointed to any examples of how UWB at 24 GHz could cause harmful interference to other spectrum users.

Mercedes-Benz has been incorporating "TeleAid" automobile safety telematics systems into their Mercedes-Benz vehicles since 1999. Today there are over 300,000 Mercedes-Benz vehicles on the road with TeleAid capability. This capability allows MBUSA's TeleAid Centers to be notified when an accident occurs, immediately contact the victims and (using GPS-based location information) send immediate help to the scene of the accident.

The automotive safety applications we hope to provide using 24 GHz UWB radar technology will greatly expand upon what we currently provide today, taking us to the next level in terms of automobile safety. These devices will provide the bridge between active and passive safety systems. Mercedes-Benz is developing integrated active safety systems, passive safety systems (collision mitigation) and post-collision rescue systems that will assist in preventing accidents, minimizing their effect, and assisting emergency personnel in their response to accidents.

24 GHz is the preferred frequency band for short-range radar applications. Technology at this frequency range has a more than 20-year history, and, as a result, off-the-shelf components are widely available. This means that the development life-cycle of the product can be shortened and the technology can be provided at lower cost to consumers. In the end, however, consumers will only be able to benefit from a reasonably priced device if the device can be operated on an unlicensed basis. Requiring individual licenses for each user of the 250,000 radar systems MBUSA expects to sell annually would be impractical and cost prohibitive without providing any benefits.

Those participating in the meetings at the FCC were FCC Commissioner Gloria Tristani; FCC Commissioner Kathleen Q. Abernathy; FCC Commissioner Kevin J. Martin; Adam Krinsky, Senior Legal Advisor to Commissioner Tristani; Kyle Dixon, Legal Advisor to Chairman Powell; Bryan Traymont, Senior Legal Advisor to Commissioner Abernathy; Samuel Feder and Monica Desai of Commissioner Martin's office; Lauren Van Wazer, Legal Advisor to Commissioner Copps; Bruce Franca, Chief of the Office of Engineering and Technology ("OET"), Julius Knapp, Deputy Chief of OET; Karen Rackley, John Reed, and Ronald Chase of OET; Jason Goldman, Legal Intern in the Office of Chairman Powell; Kathy Hilke, Legal Intern in the Office of Commissioner Abernathy; Dr. Gerhard Rollmann and Dr. Volker Schmid of DaimlerChrysler AG; Jake Jones of DaimlerChrysler Corporation; William Kurtz and Daniel Selke of MBUSA; and Ari Fitzgerald, David Martin and David McGraw of Hogan & Hartson L.L.P., counsel to MBUSA.

Respectfully submitted,

Ari Q. Fitzgerald
Counsel for MBUSA

Enclosure

DAIMLERCHRYSLER

FCC Presentation
Ultra wide band 24 GHz Radar Sensors
for Automotive Applications

ET-Docket 98-153

Mercedes-Benz Passenger Car Development

DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Traffic scenarios

Need for accident prevention

"1999: U.S.A.

- 6 million crashes; 41,000 deaths;
- 3.4 million injuries.
- 30% crashes were rear-end collisions.
- 11.8% of multi-vehicle fatal crashes were rear end collisions (1,923).
- of which 40% involved commercial vehicles (770)"

"Develop and implement .... a program to inform the public .... on the benefits, use, and effectiveness of C.W.S. and A.C.C."

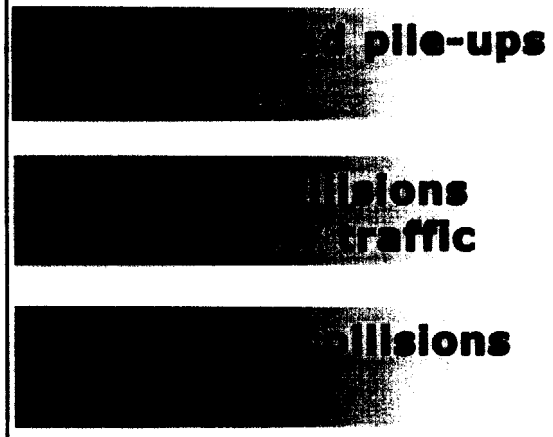
(C.W.S. = collision warning system; A.C.C. = adaptive cruise control)

[Source: Tycoelectronics Corporation, presented at ETSI-ERM Meeting June 19 2001]

DAIMLERCHRYSLER

Ultra wide band
24 GHz Radar Sensors
for
Automotive
Applications

Traffic scenarios
Need for accident prevention



Picture: pile-up (110 vehicles) on A7 Fulda-Würzburg (2. Jan. 2000);
2 fatalities, 73 injured, 20 with severe injuries, DM 2 million property damage;
traffic jam up to 40 km in both directions; highway closed for 9 hours;
traffic in the entire region halted.

Statement of U.S. National Transportation Safety Board
Public Meeting - 1 May 2001

"Develop and implement .... a program to inform the public ....
on the benefits, use, and effectiveness of C.W.S. and A.C.C."
(C.W.S. = collision warning system; A.C.C. = adaptive cruise control)

DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Accident scenarios

Causes for accidents and detection possibilities

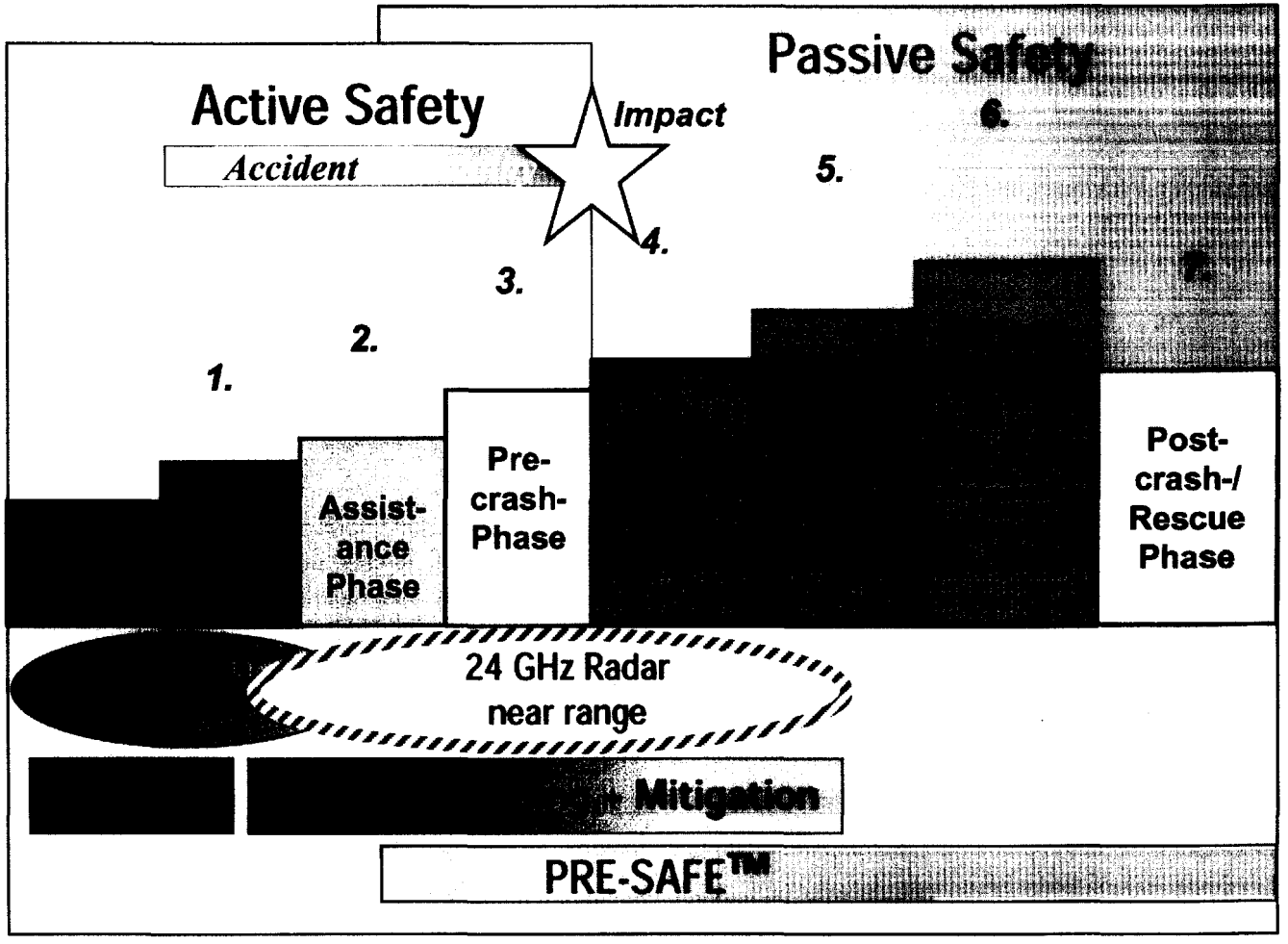
Accident Causes	Accident Scenarios	[redacted]
Driver distraction	impact with obstacle without previous driver reaction	[redacted]
Inappropriate speed	obstacle impact with previous driver reaction (e.g. steering, braking)	[redacted]
Sudden change in road conditions	running off the road	[redacted]
Sudden appearance of obstacle	skidding	[redacted]

DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Accident scenarios

Active Safety enabled by Radar Sensors



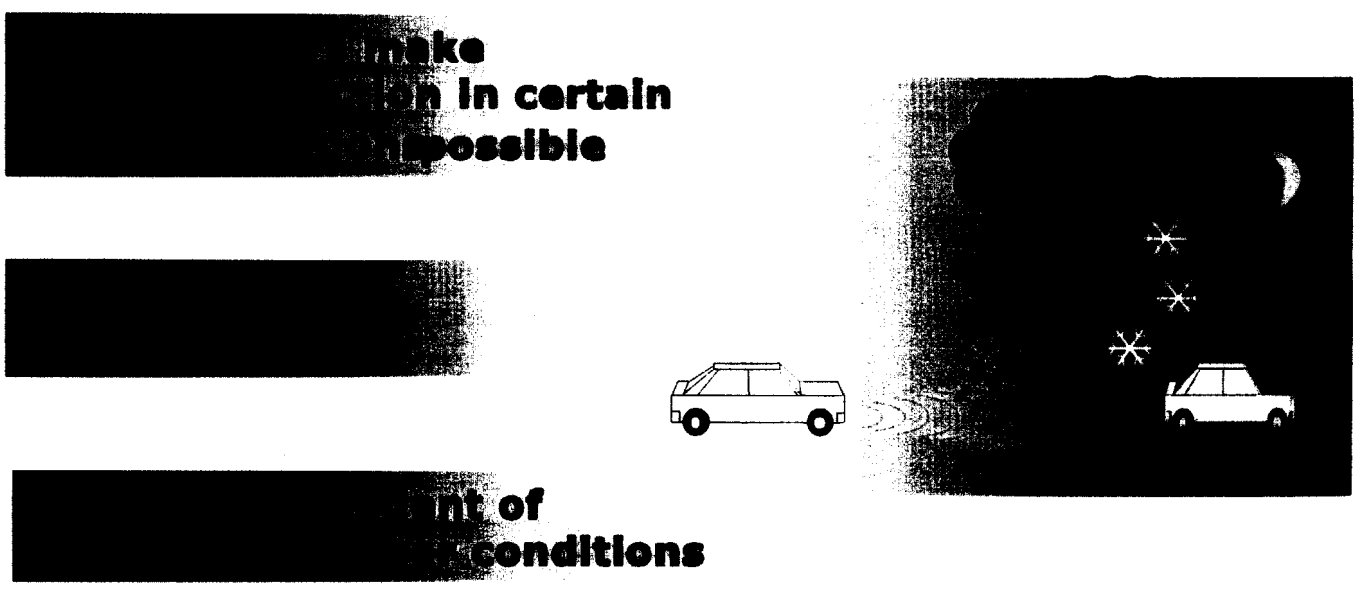
DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Technical implementation

Motivation

Sensor coverage all around the car



Automotive radar supports detection of obstacles

DAIMLERCHRYSLER

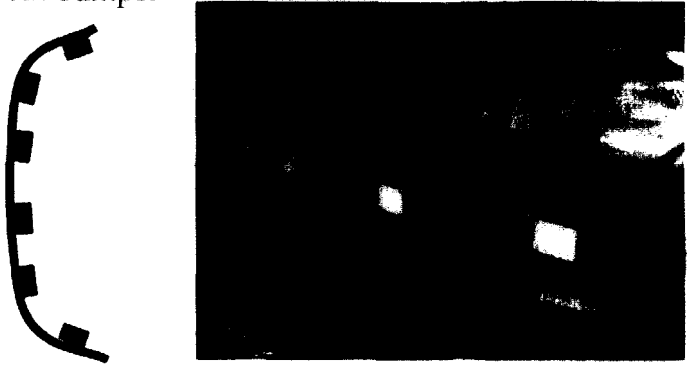
Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Technical implementation

Technical realization approach

Radar Sensors (at 24.125 GHz) are distributed all around the vehicle, mounted invisibly behind the bumper

-Front bumper



Radar technology at 24.125 GHz fulfills criteria for ISM-systems in the main lobe with peak power limited to 100mW

The envisioned systems will consist of low power devices, with radiation designed to detect objects up to 30m away

Low power and 6° elevation minimize potential interference

DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Technical implementation

Choice of 24 GHz frequency for short range applications

➲

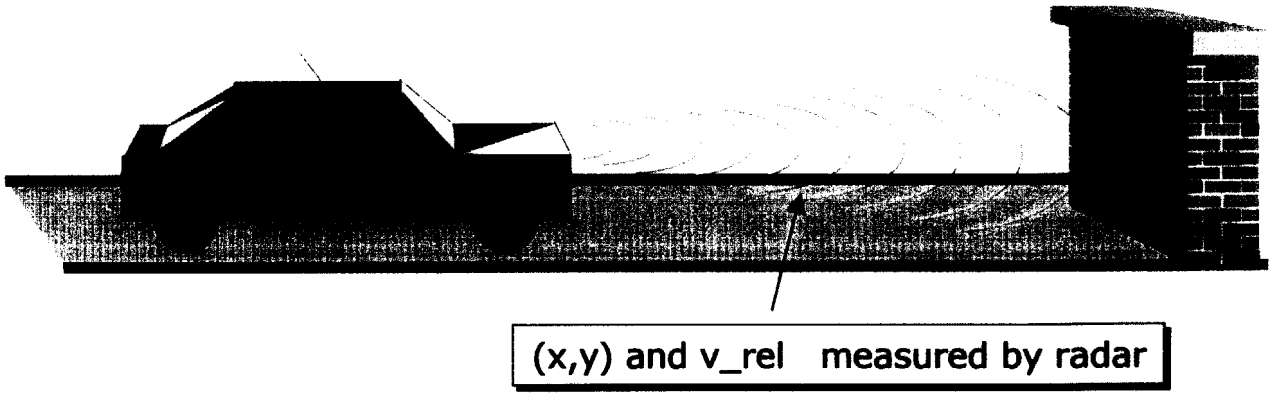
24 GHz

- ✔ Integration of moderately sized antennas into vehicle bumper is feasible
- ✔ Acceptable attenuation of µWave propagation through bumper material
- ✔ Availability of off-the-shelf components, mature production processes

DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Technical implementation
Basic functionality



Short radar pulses measure radial distance and velocity of objects relative to own vehicle
Combining the measurements of multiple sensors allows determination of object position (x,y) and speed

- **Precise measurements require short pulse lengths**
- **Short pulse lengths in turn lead to wide bandwidths**

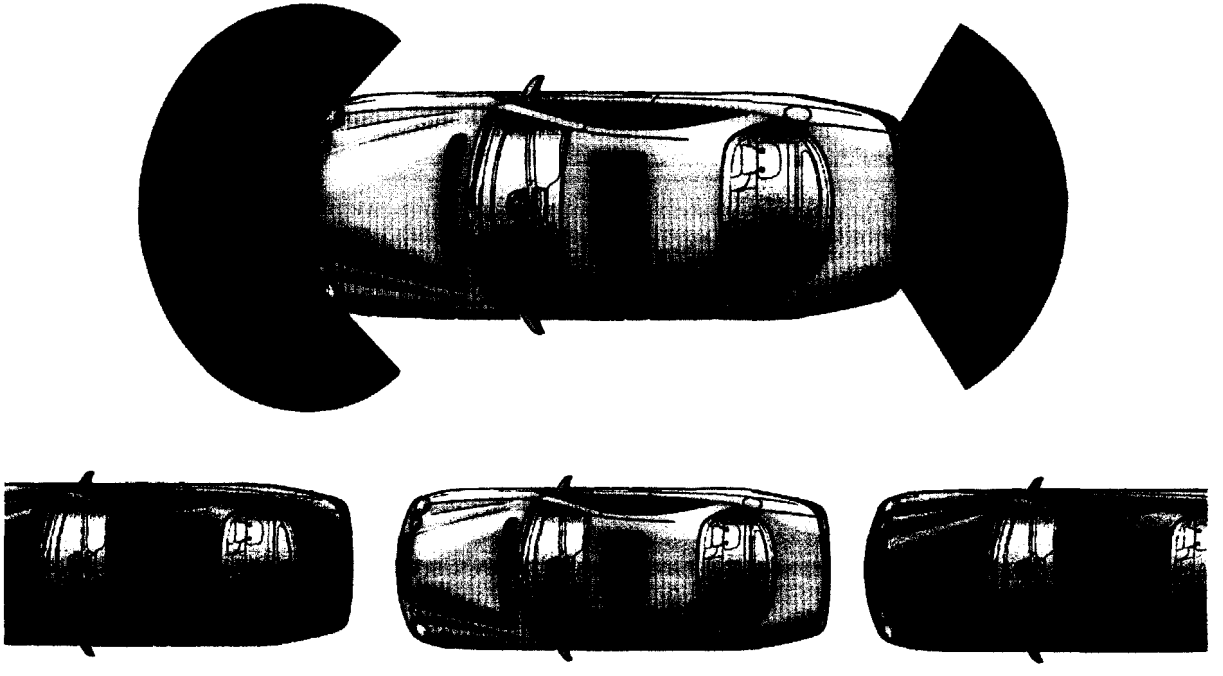
DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Fields of application

Parking situations

Precise distance measurements assist in parking situations



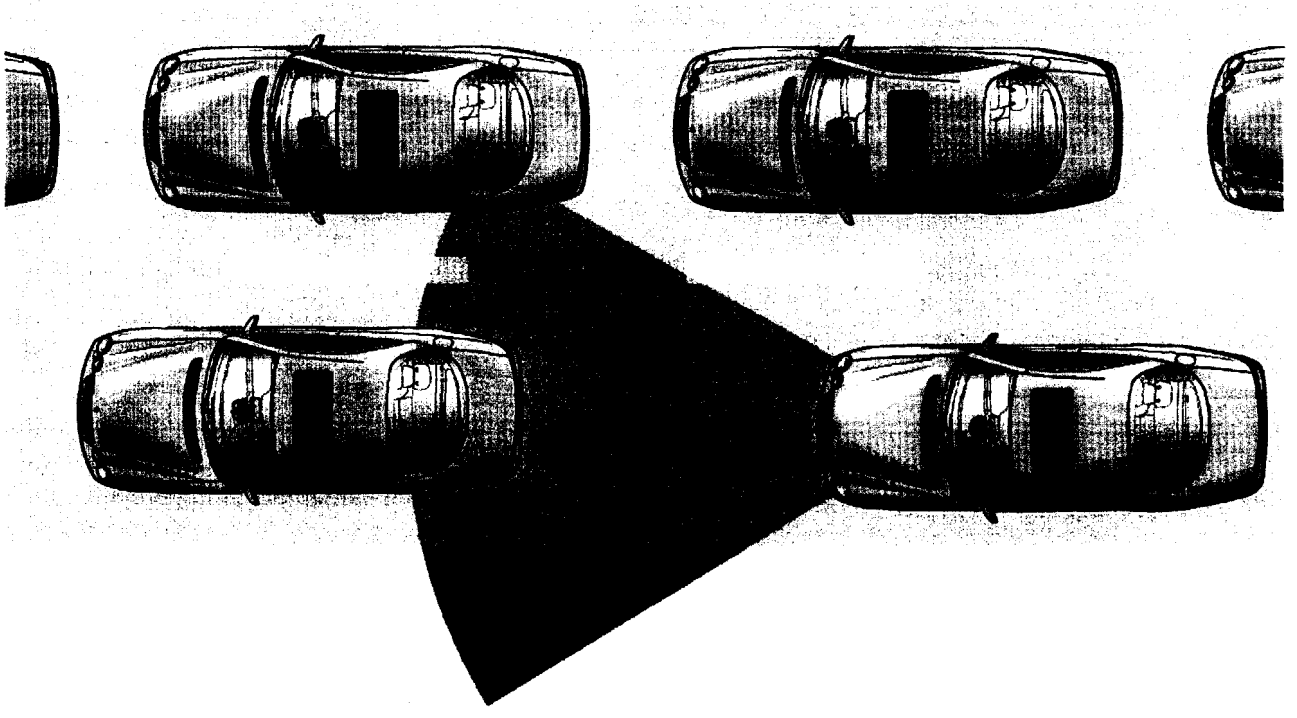
DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Fields of application

Dense city traffic

Distance and velocity measurements allow semi-autonomous following and help to prevent accidents (esp. rear-end collisions)

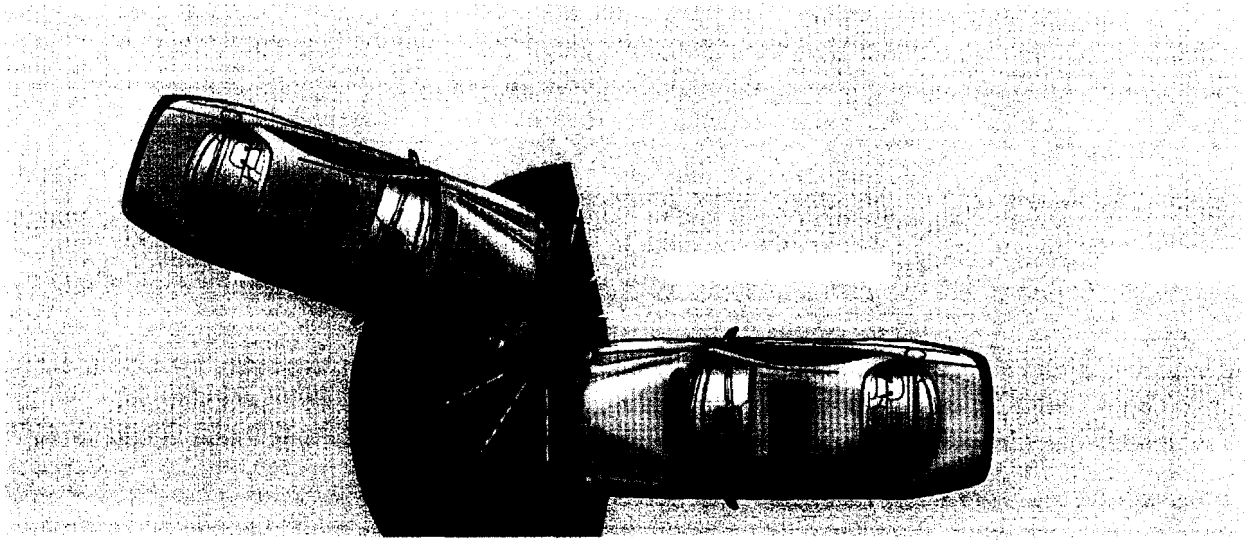


DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Fields of application
PreSafe™

Detection of anticipated crash permits forewarning and preparation of safety systems like airbags, seat belts etc.



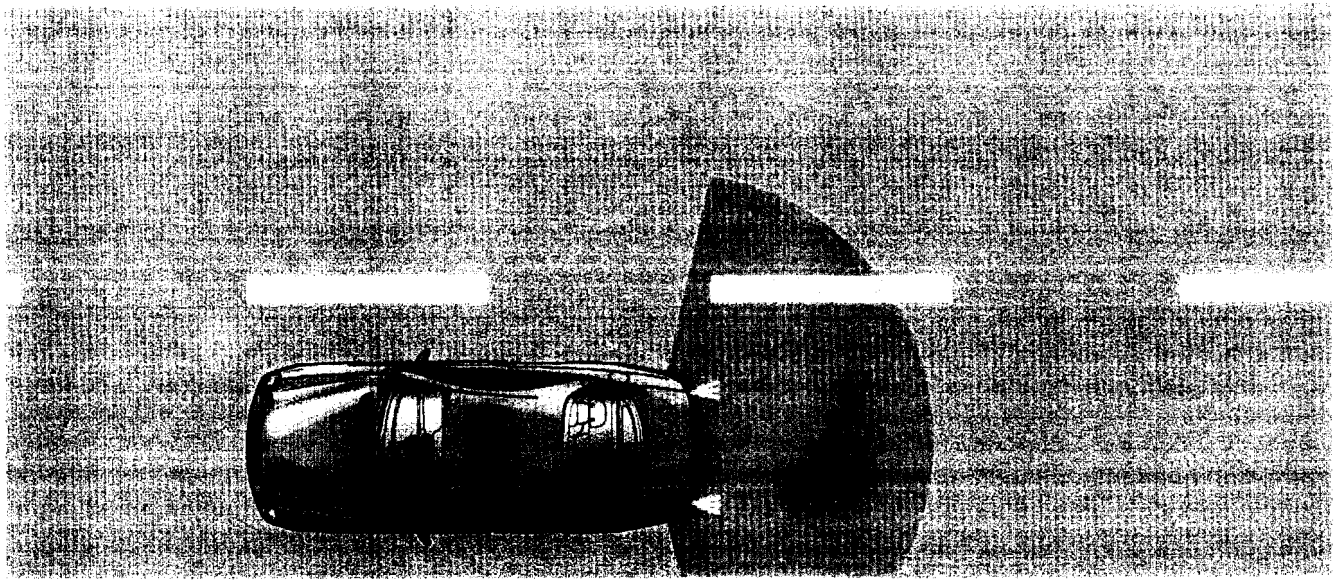
DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Fields of application

Backup aid

Yields additional protection for pedestrians/objects behind the car while backing-up



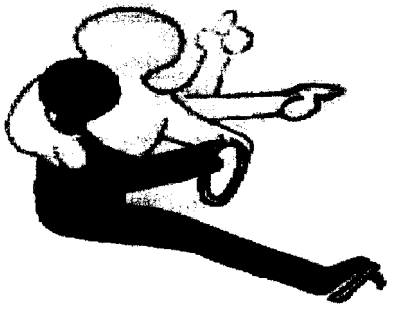
DAIMLERCHRYSLER

Ultra wide band
24 GHz Radar Sensors
for
Automotive
Applications

Potential benefits

... for public traffic safety

sensing of the vehicle's surroundings can provide the driver with a "virtual eye"



semi-autonomous vehicle control may shorten braking distances

additional time for preparation of safety systems (PreSafe™) [e.g. Out-of-position issue]

➔ **lower probability of crashes caused by cars with sensors**

➔ **enhanced mitigation of collision effects**

• This radar system reacts 0.5 seconds faster than a human driver thus allowing 10 meters more braking distance in city traffic

➔ 60% of rear-end collisions could be avoided

(Source: Daimler-Benz study, 1992)

DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

Partners

European Initiative SARA

- hort Range utomotive adio Frequency llocation

= initiative of European automotive manufacturers + suppliers

Achieve annex to European automotive radar standard EN 301 091 (77GHz) to incorporate ultrawideband short range automotive radar sensors at 24.125 GHz (ISM +/- 2.5 GHz)

DaimlerChrysler	BOSCH
Ford / Jaguar / Volvo	VALEO
BMW	M/A-COM
Opel / GM	DELPHI
Renault	SIEMENS
Volkswagen/Audi	TRW
PSA	A.D.C.
Porsche	HELLA
Fiat	InnoSent
MAN	

DAIMLERCHRYSLER

Ultra wide band 24 GHz Radar Sensors for Automotive Applications

- To take the next major step towards collision prevention and mitigation suitable UWB technology around 24 GHz needs to be deployed
- We urge prompt resolution of the proceeding in a manner that allows unlicensed UWB operations in the 24 GHz band
- Evidence today does not indicate any interference of the new sensor system with existing services

Please act affirmatively to allow us to improve Traffic Safety!